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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

THIRD SESSION OF THE EXECUTIVE BOARD

FURTHER RESEARCH ON TUBERCULOSIS

NEW ORIENTATION IN FIELD ACTIVITIES

PUBLIC HEALTH IN TURKEY

VENEREAL DISEASES IN ETHIOPIA

TETANUS TOXIN AND ANTITOXIN

STANDARDIZATION OF DIPHTHERIA TOXOID

STANDARDIZATION OF COBRA ANTIBODY

WORLD HEALTH ORGANIZATION

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VOL. 3, No. 4 APRIL 1949

CHRONICLE OF THE WORLD HEALTH ORGANIZATION

THIRD SESSION OF THE EXECUTIVE BOARD

The third session of the Executive Board, held in Geneva from 21 February to 9 March, was devoted principally to the preparation of the programme of the Organization for 1950 and to the discussion of the budget required for carrying out such a programme. The Board had the responsibility of commenting on the proposed programme and budget for the consideration of the Second World Health Assembly, which will open in Rome on 13 June, and at which the final decisions on the subjects examined by the Executive Board will be taken.

It will be recalled that the general programme of WHO was laid down at the First Health Assembly, and that, during its first year, the efforts of WHC were concentrated on the organization of control-measures against malaria, tuberculosis and venereal diseases, on the improvement of maternal and child health and of environmental hygiene, and on problems relating to nutrition. It is not necessary here to mention in detail the various other activities of the Organization, such as international epidemiology, biological standardization, the unification of pharmacopoeias, etc., all of which have been referred to in previous numbers of the *Chronicle*.

International meetings of doctors and public-health experts, which have taken place since last summer in New Delhi,[1] Paris,[2] Geneva [3] and Cairo,[4] have shown that many nations are faced with health problems which they cannot solve unaided. The ravages wrought by tuberculosis, malaria, venereal diseases and parasitic diseases are apparent in many countries where the help of WHO is needed, and there are, in addition, the general health problems of underdeveloped countries. It was felt, therefore, that with the firm establishment of WHO the scope of its activities should be widened.

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[1] *Chron. World Hlth Org.* 1948, 2, 225
[2] *Chron. World Hlth Org.* 1948, 2, 268
[3] *Chron. World Hlth Org.* 1948, 2, 275
[4] *Chron. World Hlth Org.* 1949, 3, 48

Proposed Programme and Budget

The budget for 1949 of the Organization, although totalling only $5,000,000, provides for a steady expansion, so that by the end of the year the programme will be operating at an annual rate of approximately $7,000,000. After consideration of the need for increasing the activities of WHO in the fields mentioned above, as well as of turning attention to new problems, the Executive Board decided to submit to the Health Assembly the budget proposals of the Director-General for 1950 totalling $17,000,000. These proposals are published as No. 18 of the *Official Records of the World Health Organization*, and are divided into two parts : a regular budget of less than $8,000,000 to be financed through the contributions from Member States in accordance with the scale of assessments to be established by the Second World Health Assembly; and a supplemental operating programme of advisory and technical services costing a little more than $9,000,000, which would be financed by inviting governments, in a position to do so, to indicate to the Second World Health Assembly their willingness to make additional contributions to WHO. The latter programme is intended to cover new health projects and to extend the range of the existing programme. In this way, for example, the sum allocated to malaria control would amount to more than $1,000,000. The final objective for the future must be the eradication of malaria by methods which have already produced such appreciable results in various countries,[5] and demonstrations of such methods should be given in various parts of the world. The increased budget would enable more demonstration teams to be sent to a greater number of areas. Provision is also made for the organization of special training courses in malariology in areas, especially in Central Africa and in South-Eastern Asia, where such courses have not yet been instituted.

Over and above this, a new programme of malaria control is contemplated, in collaboration with FAO, with the double purpose of raising health standards of populations in agricultural areas and of increasing world food-production. By the simultaneous application of modern control-methods and of improvement in agricultural production, it would be possible to increase the agricultural productivity of large territories.

An increased allocation is also proposed for the control of venereal diseases, a subject with enormous possibilities for immediate action. Model demonstrations with penicillin therapy are provided for so as to eradicate these diseases in highly endemic regions such as Bosnia-Herzegovina (Yugoslavia). Such demonstrations would serve as a basis for later activities in Africa and Asia. Information should be assembled for the revision of the Brussels Agreement, so as to reduce the danger of infection for

[5] *Chron. World Hlth Org.* 1947, **1**, 101; 1948, **2**, 146

seafarers and to prevent the spread of venereal diseases in ports; it is proposed that a research and demonstration programme of venereal-disease control methods be carried out in a large port. Preparation for an international conference on serology, to discuss the various methods used in the serological diagnosis of syphilis, is also proposed.

FIG. 1. THIRD SESSION OF THE EXECUTIVE BOARD — I

From left to right : Sir Arcot L. Mudaliar ; Dr Melville Mackenzie ; Dr B. Kozusznik ; Dr H. van Zile Hyde

WHO will continue to collaborate in tuberculosis control by sending demonstration teams, organizing lecture tours and by maintaining technical assistance to the BCG vaccination campaign now in progress. Research in connexion with the campaign will also be carried out under WHO auspices at the Copenhagen research centre.[6] The scope of the programmes on maternal and child health and on environmental sanitation will be widened, special attention being paid to nutritional and mental-hygiene problems. Plans have been made for sending teams to various industrial or university centres to collect information and undertake studies which will benefit other social groups at a later date.

One item of the budget deals with a programme capable of producing far-reaching effects; the establishment of three health-administration areas.

[6] See page 77

Such areas are to be chosen in territories belonging to WHO regional organizations, which are confronted with at least one major health problem, and where the prevalent diseases can be controlled by modern measures. At the same time, a general public-health programme will be put into operation. One of the main purposes in this programme is to encourage national health-administrations to apply modern prophylactic and control measures and to train local personnel.

It is proposed to increase the sums allocated for fellowships by approximately $1,000,000, as this type of WHO activity has proved to be one of the most useful to governments. It is believed that it will become even more important as health conditions in all countries improve.

The project for the first international attempt to eradicate cholera, and a budgetary allocation for this task were approved by the Executive Board. Plans have been made for sending two teams to India and Pakistan to demonstrate methods of cholera control.

The supplemental budget, moreover, provides for further activities such as typhus- and plague-control. Measures will be undertaken against schistosomiasis, which has recently been shown to be prevalent in regions where its existence had not before been demonstrated,[7] and a team will be sent to one of the infested areas to carry out experimental measures in the destruction of molluscs, the intermediate hosts of schistosomes, as well as other control methods.

An item of the budget is devoted to assistance to governments in the technical training of medical and auxiliary personnel as well as in the health education of the public.

Expert Committees

The Board examined and accepted the reports of the following expert committees, making observations and comments as the need arose: international epidemiology and quarantine, first session (including the report of the quarantine section, first session);[8] habit-forming drugs, first session;[9] maternal and child health, first session.[10]

The Board discussed the report on the third session of the Expert Committee on Tuberculosis, which will consider the Board's observations at its next meeting, when its membership will have been enlarged.

The Board recommended that an Expert Committee on Plague and an Expert Committee on Antibiotics be established, and that the Expert

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[7] *Chron. World Hlth Org.* 1949, 3, 59
[8] *Chron. World Hlth Org.* 1949, 3, 1
[9] *Chron. World Hlth Org.* 1949, 3, 27
[10] *Chron. World Hlth Org.* 1949, 3, 43

Committee on Environmental Sanitation, the Joint Committee on Nutrition, FAO/WHO, and the joint committees with ILO on the hygiene of seafarers and on occupational hygiene meet in 1949.

Co-ordination of Research Work

The Board noted the investigations carried out by the World Influenza Centre and congratulated the director on the work accomplished by the

FIG. 2. THIRD SESSION OF THE EXECUTIVE BOARD — II

Left : Sir Aly Tewfik Shousha, Pasha, *Chairman* ; right : Dr G. H. de Paula Souza

centre during the recent epidemic.[11] Certain members of the Board pointed out that national health-administrations would like to obtain more rapid and detailed information on the epidemiological development of the disease, its clinical aspects, and the morbidity- and mortality-rates.

As regards research on brucellosis,[12] the Board recommended that regional centres be designated in countries where the disease is prevalent and that brucellosis be added to the list of subjects for which co-ordinated research work under WHO auspices appears advisable. The question of

[11] *Chron. World Hlth Org.* 1949, 3, 11
[12] *Chron. World Hlth Org.* 1948, 2, 281

international research laboratories, which had been submitted by the Economic and Social Council of the United Nations, was also examined. The Board was of the opinion that the best way of stimulating increased research on health was to assist, to co-ordinate, and to use fully the work of existing institutions. The Health Assembly and the expert committees of WHO provided an adequate machinery for implementing this policy. It was requested that the Economic and Social Council should communicate all recommendations on health to WHO.

Regional Organizations

The Board noted that the Regional Office for South-East Asia had begun operations on 1 January 1949. The choice of Alexandria as headquarters of the Regional Office for the Eastern Mediterranean, which would begin to function on 1 July, was approved subject to consultations with the United Nations. Sir Aly Shousha, Pasha, was appointed Regional Director for the Eastern Mediterranean.

The Board approved the temporary arrangement reached with the Pan American Sanitary Bureau under which the Bureau, pending its final integration with WHO,[13] will act as the Regional Office for the Americas as from 1 March.

The Board was of the opinion that a regional organization for Africa could not be established until the status of Member States in this region, as well as the rights of application of Associate Members and other territories, had been defined. It is essential that such rights should be clearly defined by the Second World Health Assembly.

Relations with Other Specialized Agencies and Organizations

The Board noted the progress report on the BCG research programme,[14] which had been recommended by the Joint Committee on Health Policy, UNICEF/WHO, carried out in connexion with the anti-tuberculosis vaccination campaign. Dr C. Palmer, the director of the research centre, will submit a report on his work to the BCG panel which will meet in April together with specialists appointed by UNICEF.

The Board considered a proposal of the American Federation of Labor concerning the protection of the life and health of the worker in modern industry, and decided that it should be submitted to the Joint Expert Committee on Occupational Hygiene, ILO/WHO. The close collaboration

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[13] See page 92
[14] See page 77

existing between ILO and WHO with regard t :he health aspects of migration was stressed.[15]

As a permanent council for the co-ordination of international congresses of medical sciences will be arranged in the near future as the result of joint UNESCO/WHO action,[16] the Board recommended the adoption of certain propositions governing the collaboration of WHO.

[15] *Chron. World Hlth Org.* 1949, 3, 55
[16] *Chron. World Hlth Org.* 1949, 3, 41

FURTHER RESEARCH ON TUBERCULOSIS

The antituberculosis vaccination programme, which has been undertaken in Europe and Asia, and which will later be extended to the Near East and North Africa, offers a unique opportunity for collecting information on tuberculosis and on the results of BCG vaccination. As is now well known, the organizations participating in this programme — the Danish Red Cross and its Scandinavian associates, with material aid from the United Nations International Children's Emergency Fund (UNICEF), and technical help from WHO — are planning to test with tuberculin fifty million children and to vaccinate fifteen million in various European countries.[1] Approximately eight million children have already been examined, and three million vaccinated. A tuberculosis research centre has just been established in Copenhagen, in close association with this programme, to which individual health cards and all relevant information collected during the vaccination campaign will be sent. The Executive Board of WHO has allocated a sum of $100,000 to this centre, which sum has been deducted from a grant allotted by UNRRA.[2]

Dr C. Palmer, formerly Senior Surgeon of the US Public Health Service, will assume the direction of this research centre. He will have as collaborators Dr Lydia Edwards, US Public Health Service, and Dr I. C. Yuan, formerly Deputy Minister of Health in China.

Dr Palmer submitted to the Joint Committee on Health Policy, UNICEF/WHO, and to the WHO Executive Board, a memorandum on the research work which should be undertaken both during field operations and at the research centre, on the basis of the information collected. Such work included the establishment of criteria for selecting persons for vaccination. There are differing opinions with regard to the degree of tuberculin sensitivity required to differentiate those persons needing, from those not needing,

[1] *Chron. World Hlth Org.* 1948, 2, 34
[2] *Chron. World Hlth Org.* 1948, 2, 248

vaccination. The present lack of uniformity invalidates the reliability of statistical results, and only the use of uniform methods of vaccination and tuberculin-testing would make it possible to estimate the role, among others, of age, country or nationality. The sensitizing effect of various vaccines, and the variations due to the methods of application would then have to be determined, and a study made of the effects of revaccination on allergy, as well as on tuberculosis morbidity- and mortality-rates, on all of which there is a lack of precise information at the present time.

The material available to the research centre will enable it to carry out epidemiological studies which could not be undertaken previously. In particular, it would be possible to compare the mean annual rates of infection for children between the ages of 6 and 14 in the different regions where the work is being carried out, according to observations made on the rate of conversion from negative to positive reactions to the tuberculin test.

Strict scientific proof of the effectiveness of BCG vaccination is not available. The opportunity afforded by the present programme should therefore be used to undertake studies, comprising the comparative observation of groups accepting and of others refusing vaccination. Serious difficulties may arise in such studies, for, if they are to be of value, it is essential, in particular, that vaccinated and non-vaccinated persons should be observed over a long period, and that conditions permitting comparison between the two groups should remain throughout identical. Without these conditions, the work will be useless.

Other subjects of research are contemplated by the director of the centre, in particular : the possible influence of family, hereditary or radical factors on tuberculin sensitivity; the establishment of a uniform system of vital statistics permitting the evalution of changes in the tuberculosis mortality-rate in various countries following BCG vaccination; comparison of the results of tuberculin-test and X-ray examinations.

NEW ORIENTATION IN FIELD ACTIVITIES

The end of 1948 closed, in some sense, a chapter in the story of the field activities of WHO; under the 1949 programme changes have been necessitated in the policy and organization of such activities as well as in the type of assistance given to governments.

During 1947 and 1948, the only funds available for assistance to governments in the field were those derived from UNRRA and were subject to the limitation that they were to be spent for the assistance of UNRRA-aided countries only, i.e., Albania, Austria, Byelorussia, China, Czechoslovakia, Ethiopia, Finland, Greece, Hungary, Italy, North and South Korea, the

Philippines, Poland, Ukraine and Yugoslavia. In addition to the programmes for fellowships, visiting lecturers, medical literature and special teaching material, the Interim Commission of the World Health Organization continued, at the request of the governments concerned, advisory services established by UNRRA in the form of missions in China, Ethiopia, Greece, Hungary, Italy and Poland. Accounts of their composition and activities have been published previously in the *Chronicle*,[1] and have been kept up to date by information under the heading " Notes from the Field ".

These missions have had three main tasks, of which the third was the most important :

(*a*) liaison between WHO Headquarters and the government concerned ; (*b*) assistance to the government in the local administration of the programmes for fellowships, visiting lecturers and medical literature ; (*c*) advisory, teaching and demonstration services, upon request, in general public-health administration and related fields such as nursing, sanitation, epidemiology, distribution of medical supplies, and the campaigns against malaria, tuberculosis and plague.

As the health services in these war-devastated countries became re-established and health conditions improved, some of these activities became redundant or no longer required the employment of imported staff. Thus the liaison officer in Hungary was withdrawn at the end of 1947, and those in Poland and Austria in the autumn of 1948. In China, conditions did not justify the replacement of staff as it became reduced by natural attrition. In Greece, the extent of aid given by the American Mission for Aid to Greece permitted the reduction of the WHO imported staff to two members, whilst in Italy the staff would also probably have been withdrawn by now, but for the development of a new and important project referred to below. Only in Ethiopia, in spite of many difficulties, was it felt justified to continue the WHO mission at the same strength as at the beginning of 1947.

The First World Health Assembly in July 1948 established the programmes and budget for 1949 : it did not specifically authorize the continuation of missions in countries, although it took note of the formal agreements establishing missions in Ethiopia, Italy and Greece, terminable at three months' notice. The Assembly approved the provision of advisory and demonstration services of consultants or teams to governments requesting them, and established priorities for programmes in malaria, tuberculosis, venereal-disease control, maternal and child health, nutrition and environmental sanitation. It also delegated to the Executive Board — which subsequently delegated to the Director-General — the responsibility of making allocations to countries for the provision of these services.

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[1] *Chron. World Hlth Org.* 1947, 1, 73, 173

An all-important new factor which came into operation at the beginning of 1949 was that the funds from UNRRA had been expended or committed by the end of 1948, and consequently restriction of services to UNRRA-aided countries lapsed. Although the total amount available in the 1949 budget for field services was of the same order as in 1947 and 1948 — i.e., approximately $1,500,000 each year — the services now became available to some 55 nations instead of 15; the same amount of butter had therefore to be spread over much more bread.

Of course, many of the more highly developed countries have not requested services in 1949, and others from whom requests might have been expected to come have not yet formulated them. But by the beginning of the year it was clear that the demands would be considerably in excess of the funds available to meet them. In these circumstances it was clearly not justifiable to continue indefinitely even the much reduced missions in particular countries, and steps have been taken either to terminate them or to bring them into line with the other consultant and team services initiated or planned for 1949. These latter include, among those already initiated, (in some cases as joint projects with the United Nations International Children's Emergency Fund (UNICEF)) : consultants or teams for malaria, in Afghanistan, Albania, Bulgaria, Hungary, India, Iran, Pakistan, the Palestine area, Roumania, Siam, Turkey and Yugoslavia; for venereal diseases, in Afghanistan, Bulgaria, Czechoslovakia, Denmark, Finland, Hungary, India, Italy, Norway, Philippines, Poland, Sweden and Yugoslavia; for tuberculosis, in Egypt, India, and Latin America; and for maternal and child health, in Ceylon, Egypt, and a group of countries in the Middle East.

Special mention should be made of the project of the Italian Government whereby a joint survey will be made of the public-health administration system, by consultants provided by the Italian Government, WHO, and the Rockefeller Foundation, with the former chief of the WHO mission in Italy as executive secretary.

Another field programme in operation since early January is the emergency health programme for aid to refugees in the Palestine area. With the consent of the relief agencies operating in the area — the International Red Cross Committee, the League of Red Cross Societies, the American Friends' Service Committee and UNICEF — a medical officer with a small staff has been attached to the office of the Director of the United Nations Relief to Palestine Refugees (UNRPR) in Beirut, and given responsibility for co-ordinating the public-health and anti-epidemic aspects of the relief work, particularly in sanitation and malaria.

Thus the advisory and demonstration services formerly provided by the WHO missions have been assimilated with the general field programmes. Where justified by the number of staff or the duration of the programme in a particular country, an office has been established with the former chief of

the WHO mission in charge as chief representative of WHO in the country concerned. At present there are such offices in Shanghai, Addis Ababa, Rome (jointly with the Rockefeller Foundation for the public-health administration survey), Beirut (for the refugee programme in the Palestine area), and Singapore (for epidemiological intelligence services only).

As and when regional offices are established, these field offices — if still in existence — will come under the jurisdiction of the appropriate regional office.

PUBLIC HEALTH IN TURKEY

Some Personal Observations

At the invitation of the Turkish Government, Dr J. M. Vine, Representative of WHO in Greece, paid two visits to Ankara in May and October 1948. The object of these visits was to discuss with the Turkish Minister of Health and his chief officials various aspects of public health, with particular emphasis on malaria, tuberculosis, trachoma and the problem of a state nursing service. The first visit lasted five days and the second five weeks, during which Dr Vine made an extensive tour covering Ankara, Istanbul and western and southern Turkey almost to the frontiers of Iran; in the course of this he visited 146 institutions. As a result of these visits, plans were drawn up for future developments in tuberculosis and for the organization of a state nursing service. Some of the observations made by Dr Vine during his visits are summarized below.

There is in Ankara an efficient Ministry of Health with full services in all the provinces of this large country with its 20,000,000 inhabitants. There is a corps of hygienists and sanitarians, who are not underpaid and apply themselves to their work with keenness and energy. This important point has been overlooked in many countries which therefore suffer from inefficiency in their government organizations.

Recruitment to the civil service is assured by a system whereby a boy on leaving school can receive a government bursary which covers all further educational and living expenses until he graduates. Then he must serve five years in state employment, wherever the state sends him. After that, he may remain in the state service with two years' seniority, or he may leave for private work. In practice the majority prefer to stay.

The Turkish epidemiological service is good; there is a separate division of malaria control directed from Ankara and covering over half the country. The public-health administration is well equipped with the usual other services, and there is in addition a school of hygiene and a magnificent serum

laboratory and institute in Ankara. There are medical schools both in Ankara and Istanbul. The old, inefficient provincial institutions are steadily being replaced by modern hospitals in buildings excellent in design and equipment. Health officers take pride in applying the principle of free treatment to all.

The major public-health problems in Turkey are those of tuberculosis, malaria, venereal diseases, trachoma, infant mortality, and the lack of trained nurses. Of these, tuberculosis is the most important, but a comprehensive plan of control, trained staff, and funds are lacking. Malaria is at present under control, thanks to the use of modern methods. Venereal diseases are steadily being reduced by organization and modern therapy. Trachoma is heavily endemic in the southern provinces and is cared for by a special service of hospitals and dispensaries. Sulfonamides of the type which were found so successful in Greece are now being used. Few children were seen in the trachoma hospitals. On infant mortality it is very difficult to give precise information, as such statistics as were seen gave no clear picture. A special inquiry would be necessary to clear the situation; some interesting graphs were seen, which indicate a close correlation between the decline in malaria and the rise in birth-rate.

The death-rate of 200 per 100,000 confirms the importance of tuberculosis. The public-health administration has less than 2,000 beds available and the dispensaries are not co-ordinated with the hospital and sanatorium facilities. Where sanatoria have been built they are entirely satisfactory in every way, and there are a few dispensaries of modern type. BCG is used only in a few centres in the large cities.

During the last few months a national campaign was started and a real attempt to attack this problem was made. Important sums have been allocated by the government and a five-year plan is being evolved. The people's interest is being aroused by propaganda of all kinds, and among all classes there is an awakening to the necessity of bringing tuberculosis under control.

The nursing problem is acute for many reasons. Turkey has emancipated its women, one of the results of which is that intelligent and educated girls can achieve careers in business, with better material prospects than in nursing. Furthermore, the only schools of nursing are situated in the two large cities of Ankara and Istanbul, which also happen to be centres of commercial activities. The quality of nurses is good, especially those from the Red Crescent Training School in Istanbul. However, at present Turkey has only 800 trained nurses of all types, and on a basis of one trained nurse per thousand inhabitants there is a need for some 20,000 nurses. This figure alone should suffice to show the magnitude of the problem which confronts the public-health authorities in Turkey.

VENEREAL DISEASES IN ETHIOPIA

During the last two decades, considerable progress has been made in tackling the health problems of Ethiopia. Their importance has been recognized by the government, whose achievements in the short time since the war of liberation of 1941-1942 augur well for the future. Much work however, still remains to be done, and competent outside assistance will be necessary for some years to come.

Since 1909, when the Menelik Hospital in Addis Ababa was founded, other hospitals have been opened by the Ethiopian Government, by foreign missions, and by the Italians during the period of occupation, but there are still only about 3,300 beds to serve 10-15 million people, and elementary equipment is often lacking; it is estimated that only about one-tenth of the population has access to medical attention. The two most serious difficulties encountered are lack of professional personnel and of funds. Ethiopia possesses no practising physicians of her own, and very few qualified nurses. There are at present in the country some 70 foreign doctors and about the same number of nurses. A committee on medical education recently estimated that about 5,000 technically trained workers, including medical assistants, nurses, dressers and sanitary inspectors, are still needed.

Since the war of liberation, several foreign medical groups have given assistance to the Ethiopian Government, and more recently considerable help was received from the Health Division of UNRRA. The work begun by this organization was finally taken over at the beginning of 1947 by the WHO Mission to Ethiopia.[1]

Work of the WHO Mission

The chief aims of this mission have been twofold : first, to assist the government in planning and establishing a programme for the training of personnel; and, secondly, to give technical and advisory assistance in certain problems. The first of these aims was in conformity with the emphasis placed by the government on education in general. The plan included three stages : (*a*) elementary training in nursing and sanitation for dressers, sanitary inspectors, laboratory technicians, pharmacy assistants and voluntary health workers; (*b*) the establishment of a school for medical assistants, with a three-years' course, to be supplemented shortly by a school for nurses, also with a three-years' course, as well as plans for the advanced training of pharmacy assistants; (*c*) possible university training. Considerable progress has been made in the first two stages, but the last has not yet

[1] *Chron. World Hlth Org.* 1947, 1, 179

FIG. 3. WHO MISSION TO ETHIOPIA

Nurses and dressers trained under the programme established with the aid of WHO

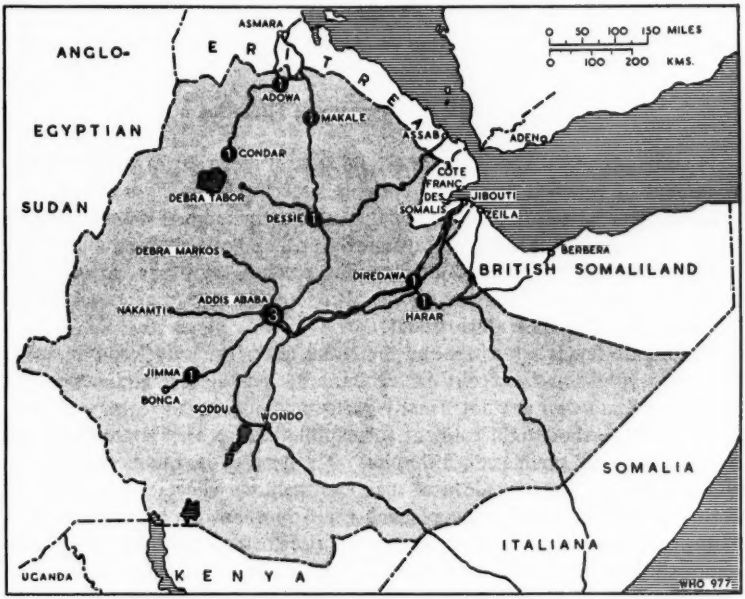
been reached; in the meantime, qualified students are being sent to medical and other schools abroad, some of them profiting from a limited number of fellowships provided by WHO.

Among the problems in which WHO was to give technical and advisory assistance to the government, nutrition, tuberculosis and venereal diseases were chosen for detailed investigation.

There are conflicting reports as to the prevalence of tuberculosis and venereal diseases, but available information indicates that the latter, and especially syphilis, have constituted an important problem in East Africa for many years. Special assistance from WHO in assessing this latter problem was requested by the Ethiopian Government, and in response to this

Dr T. Guthe, Chief of the Section on Venereal Diseases of WHO, visited Ethiopia from March to April 1948 to survey the situation. A report of this survey has recently appeared in the *Bulletin of the World Health Organization.*[2]

FIG. 4. MAP OF ETHIOPIA, SHOWING POSITIONS OF PROPOSED VENEREAL-DISEASE CLINICS



Extent of Syphilis

All types of venereal disease occur in Ethiopia, but syphilis is the most frequently occurring of these and the most important from the social, medical and epidemiological points of view. It is, however, extremely difficult to assess the actual prevalence of this disease, owing to the incompleteness of statistical data and to various other factors, including limitations of technique, false positive sero-reactions, and little-known racial and environmental factors.

The distribution of venereal diseases in Ethiopia, as of other prevalent diseases, is largely governed by climatic, geographical, sociological and

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[2] *Bull. World Hlth Org.* 1949, 2, 85

economic factors. The social and economic upheaval following the Italian occupation and the war of liberation, migratory movements, juvenile delinquency, promiscuity, alcohol consumption, and, to some extent, the codes governing marriage and divorce, have all been contributory factors in increasing the incidence of venereal diseases. Syphilis appears to be epidemic in the larger urban centres, and endemic in both urban and rural areas. Few systematic surveys have been made, but those carried out in 1944-45, by the US Technical Project in Ethiopia, in three village areas (Ambo, Gauani and Shabe) deserve careful consideration.

Diagnostic and Treatment Facilities

Except in Addis Ababa, there are no special facilities for diagnosis and treatment of venereal diseases. Patients suffering from these diseases are found in general wards with other patients, even in some of the main hospitals in the capital. Most cases are, however, handled as outpatients at the Tekla Haimanot and Filwoha clinics. The recently established Dedjajmach Balcha Hospital, which is staffed by Russian technical personnel, has a special venereal-disease department.

There are few laboratories and the Kahn test is the only sero-diagnostic test for syphilis carried out in Ethiopia. Dark-field examinations for *Treponema pallidum* are not usually performed.

Ancient methods of treatment for syphilis and other venereal diseases are probably still practised in Ethiopia. The general use of arsenicals introduced over the last decade and their conspicuous effect on dermotropic forms of syphilis has, however, given the Ethiopians a certain amount of faith in modern medicine, and has given rise to the firm belief that intravenous injections are the only salutary procedure in many ailments.

Many sulfonamides have also been used in gonorrhoea in recent years, but the variation in toxicity and treatment schedules with the different preparations has caused confusion in dosage, and it is probable that the creation of sulfa-resistant gonococci has been furthered in this way.

Penicillin has not been available in outlying clinics and dispensaries. It has, however, been distributed to hospitals for general purposes, and has thus been used in some cases of gonorrhoea, but no penicillin has been used for syphilis.

Recommendations

The last part of Dr Guthe's report gives detailed recommendations for a venereal-disease control programme. The immediate necessity is an initial programme to meet present urgent needs; but this should come within the framework of a long-term plan, and would provide the practical experience on which the latter could be developed.

A draft Venereal-Disease Control Act was drawn up by various Ethiopian and other officials in consultation with Dr Guthe. This covers the definition of venereal diseases, treatment, contact-tracing, statistical reports, propaganda and health education, in their legal and organizational aspects. Detailed practical suggestions for the improvement of the various facilities are also given.

Finally, it is estimated that five years would be required for the gradual extension of services under the draft Venereal-Disease Control Act, and the estimated financial requirements for this proposed programme are given.

TETANUS TOXIN AND ANTITOXIN

In a memorandum from the Department of Biological Standards, National Institute for Medical Research, London, submitted to the Expert Committee on Biological Standardization and published in the *Bulletin of the World Health Organization*,[1] an account is given of the present status of the problem of tetanus toxin and antitoxin. There follow suggestions for research which should be undertaken in order to solve the various problems related to the assay of tetanus sera, to the mode of action of toxin and to the properties of antitoxin.

Research carried out by Llewellyn Smith has demonstrated that the comparative assay of samples of tetanus antitoxin is influenced by the toxin used, the species of test-animal, and the route of injection. Work undertaken by Petrie leads to the conclusion that crude tetanus toxins, whether used as immunizing antigens or as test-toxins, are to be regarded as mixtures in varying proportions of the primary toxin molecule and of an antigenic variant of this. Preparations of tetanus serum likewise consist of mixtures of the corresponding antitoxins. Differences in mutual neutralizing affinities of these components in a reacting system account for the discrepancies in titre of tetanus sera when different test-toxins are used for the assay. Variations increase with the age of the culture from which the toxin comes.

The varying composition of tetanus toxin and the multiplicity of antibodies in antitoxins make it possible to explain the difficulties encountered in standardizing tetanus antitoxin. However, this theory does not explain why results obtained vary so much according to whether the assay of the titres is made on the mouse or on the guinea-pig. Petrie has put forward various hypotheses as an explanation of this phenomenon.

The discrepancy noted in titrations could also be explained by the unequal distribution of antibodies in the various fractions of the horse globulins.

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[1] *Bull. World Hlth Org.* 1949, 2, 59

Research on diphtheria antitoxin suggests that at different stages of immunization different fractions of these globulins may carry antibody; such fractions would be expected to have quite different physical properties.

Further studies should be devoted to many of these important points. A wider range of research might be attempted with regard to toxin, antitoxin and the test-animal.

Precise data on the local action of neurotoxin on neuromuscular transmission would be particularly useful, as it would be possible to contemplate new methods of assaying toxin and of estimating its activity. Much recent work suggesting various solutions of this problem is summarized.

A critical investigation of antibody-bearing fractions of globulin in a number of sera might be attempted by electrophoretic and chemical methods, correlating with the mouse/guinea-pig ratio, the dissociability, the speed of flocculation, etc. This last test could furnish data on the relative qualities of toxins and antitoxins.

Research suggested for toxins and antitoxins, if applied to mice and guinea-pigs, in parallel, might elucidate the differences between them.

Finally, principles are set forth, in this memorandum, for the production of a stable toxoid with which an alum-precipitated toxoid (APT) could be prepared.

STANDARDIZATION OF DIPHTHERIA TOXOID

The crystallization of diphtheria and tetanus toxoids which has been accomplished during recent years has brought nearer to realization the establishment of highly purified standard toxoid preparations. The Expert Committee on Biological Standardization recommended, at its first session,[1] that the samples of diphtheria toxoid offered by the National Institute of Health, Bethesda, Md., USA, be distributed to various laboratories and that research be carried out with a view to the possible standardization of this substance.

As no definite answer can as yet be given to the fundamental question of whether the measurement of diphtheria toxoids in terms of units is theoretically possible, the evaluation of such toxoids in different countries will for the present depend on minimum requirement tests. It would undoubtedly be a step forward if agreement could be reached concerning a uniform, internationally accepted minimum requirement test.

Various aspects of the problems arising in the standardization of diphtheria toxoid have been considered in a study by N. K. Jerne & O. Maaløe of

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[1] *Chron. World Hlth Org.* 1947, **1**, 107

the Department of Biological Standardization, State Serum Institute, Copenhagen, published in the *Bulletin of the World Health Organization.*[2] The article gives a critical assessment of previous findings, as well as some ideas on the present position with regard to the possibilities of standardizing the immunizing potency of toxoids.

The first question discussed is the correlation between the immunizing dose and the response of the organism. Two essentially different methods have been employed : the first is the "toxin" method, which consists in establishing a relation between the dose of toxoid and the percentage survival of guinea-pigs to which doses of toxoid and toxin have been successively administered. The second is the antitoxin-titration method by intracutaneous injection in animals. The authors discuss the theoretical bases of these two methods and illustrate their results by graphs. The advantages to be derived from the second method are discussed at length. If this is used for estimating the immunizing potency of toxoids, it will obviously be necessary to rely on the method of evaluating cutaneous reactions following intracutaneous injections in rabbits, as worked out by Jensen and Ipsen. However, this method has not proved entirely satisfactory in all cases. In fact, it was noted that the results obtained varied considerably with the toxin concentration against which the serum was tested. The authors examine the conditions under which these discrepancies are observed, and raise the question as to what is, biologically, the correct antitoxin-titre of a serum. They propose the use of two different titres.

In immunization experiments using potent APT-preparations, which it is necessary to dilute for injection, it is important to ensure that this dilution does not change the preparation. The advantages of certain solutions — sodium chloride being preferable to the phosphate buffer solution — and the principle which must govern the choice of the solution used as diluent are discussed in the last section of the article.

Experimental data collected in the course of these experiments may perhaps enable the following fundamental problems to be solved : Is it possible to compare directly the immunizing potencies of different toxoids ? Or do toxoid preparations differ qualitatively to such an extent that a simple ratio between potencies cannot be established ?

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[2] *Bull. World Hlth Org.* 1949, 2, 49

STANDARDIZATION OF COBRA ANTIBODY

The Permanent Commission on Biological Standardization of the League of Nations recommended that studies be undertaken with a view to the standardization of antivenenes. As a result of research carried out at the South African Institute for Medical Research in Johannesburg, Professor E. Grasset had shown [1] that it is possible to determine with sufficient accuracy the neutralizing power of African anti-viper-venom serum *(Bitis arietans)* and anti-cobra-venom serum *(Naja flava)*, as well as the respective cobra and viper antibodies contained in the polyvalent anti-snake-venom serum prepared at the institute, by using the method of titration at various levels of Banič & Ljubetič, as modified by Ipsen.

Professor Grasset has recently published in the *Bulletin of the World Health Organization* [2] the results of his work at Johannesburg in which the same method was applied when assaying cobra antibody contained in concentrated therapeutic polyvalent sera destined for public use. The accurate assay of this antibody appears to be particularly important, as its neutralizing power is, relatively speaking, much less (in ratio of 1 : 10) than that of the antibody *Bitis arietans* and is capable of varying considerably according to the origin of the various sera.

Research work, carried out according to the assay method used previously by the author,[3] related to a series of 12 polyvalent antivenenes having widely varying neutralizing powers, and obtained by two different methods, 7 sera being concentrated by fractional precipitation, and 5 sera purified by pepsin digestion and concentrated by ammonium sulphate. Two concentrated venoms of different toxicity, which had not varied over a period of four years, were used as antigens. The various serum-venom mixtures containing increasing doses of venom, the difference between doses being 0.0025 mg. to 0.01 mg. for the same amount of each serum, were injected into a number of mice which varied, according to the sera, from 2 to 8. Titration was carried out at four levels of serum : 0.3, 0.2, 0.1 and 0.05 ml.

The potency of each serum was calculated in two ways :

(1) using the formula of Banič & Ljubetič as adapted by Ipsen, in which the titres obtained at the different levels are introduced in pairs, in all possible combinations, thus — titration having been carried out at four levels — giving six different results, and a mean titre is then calculated;

(2) by direct calculation at each level, after deducting the amount of venom which can be tolerated by the organism in the absence of a specific

[1] *Bull. Hlth Org. L.o.N.* 1941, **9**, 476
[2] *Bull. World Hlth Org.* 1949, **2**, 69
[3] Described in detail in *Bull. Hlth Org. L.o.N.* 1941, **9**, 476

antivenene — i.e., $^4/_5$ of the certainly lethal dose (c.l.d.) according to Banič & Ljubetič. Following computation, four distinct results are obtained for each serum, on the basis of which a mean titre is also calculated.

Tables accompanying Professor Grasset's article give detailed results of titration calculations for each serum according to both methods. On the whole, these results show only slight discrepancies. When using the first method (titration at various levels), the discrepancy noted between extreme titres (maximum and minimum) obtained for a single serum varies between 0 and 10% for 7 of the 12 sera, and reaches a maximum of 22% in the case of two sera. When using the direct computation method at each level, titration discrepancies vary between 0 and 21%, and are less than 5% for more than half the sera (7 out of 12).

A comparison of results obtained by the two methods of calculation shows that for a single serum there are slight variations from one mean titre to another, the difference being less than 5% for 10 sera and reaching 12% for one serum only.

The author believes that, in the multiple-level method, titration at the lowest level (0.05 ml. of serum) shows certain discrepancies, probably due to the fact that the mixtures contain a dose of venom which is too weak.

The quantity of venom contained in a mixture should not be less than 5 c.l.d., according to Professor Grasset. It would therefore be preferable to limit titration to the three levels of 0.3, 0.2 and 0.1 ml. of serum. On the other hand, the accuracy of titration seems to increase if the intervals between increasing doses of venom contained in the various serum-venom-mixtures are relatively small — 0.005 mg. for example — and if each mixture is injected into a sufficient number of mice.

Of the three higher levels, that of 0.2 ml. seems to offer the most regular titrations. A comparison of titres obtained by direct computation at this level (after the deduction of $^4/_5$ c.l.d.) and mean titres obtained by the formula at various levels, shows remarkable uniformity. Differences between the two series of results oscillate between 0.15% and 2.18% for 9 out of 12 sera, and between 4% and 6% for two others; in one case only does the difference amount to 11%. Titration at the level of 0.2 ml. of serum seems to offer adequate guarantees of accuracy and regularity for determining the neutralizing power, and mixtures produced at this level always contain a sufficient number of c.l.d. of venom. In addition, a volume of 0.2 ml. of serum allows for adequate doses of venom and the complementary saline solution which is required to bring the volume up to the 0.5 ml. injected into each animal. Moreover, titration at a single level means a considerable saving both in standard venom used as antigen, and in the number of animals required for titration operations.

Notes and News

Extension of WHO Epidemiological Radio-Broadcasts in French from Geneva

Since 25 March, the French text of WHO radio epidemiological bulletins, broadcast by long wave (4,800 metres) for the benefit of health administrations by station HBG at Genève-Prangins, have been transmitted also by short wave (44.97 metres) by station HBQ. These two broadcasts, which are beamed to Europe and North Africa, take place every day at 9.20 (GMT).

It will be recalled that the daily broadcasting in English and in French of epidemiological bulletins began in January 1949.[1] This service, which was begun on an experimental basis, has been very favourably received, and the health administrations of a score or more countries have already informed WHO of the value of such notifications. Receiving stations, ships at sea, and private stations have supplied information on reception conditions.

Port and national health authorities now receive information daily and will be in a position to carry out rapidly necessary measures against the introduction of pestilential diseases or to re-introduce quarantine measures which have been allowed to lapse. In approving the broadcasting service of epidemiological bulletins at its third session, the Executive Board recognized its importance in the control of epidemics, and requested that governments collaborate by re-transmitting free the bulletins through radio stations which they own or control.

Temporary Arrangement with the Pan American Sanitary Bureau

The Pan American Sanitary Bureau has been operating since 1 March as the WHO regional organization in the western hemisphere. An arrangement to this effect has just been concluded, pending the integration of the Pan American Sanitary Bureau with WHO, which will take place when 14 of the member states of PASB have ratified the WHO Constitution.[2] At present, 13 of these countries have deposited their instruments of ratification.

This temporary arrangement, signed by Dr Brock Chisholm, Director-General of WHO, and Dr Fred Soper, Director of the Pan American Sanitary Bureau, aims at bringing about uniformity in the programmes of the two organizations as soon as possible.

Since its creation in 1902, the Pan American Sanitary Bureau has played an active part in co-ordinating measures for the improvement of health conditions in the various countries of the Americas and in preventing the spread of epidemics. It is under its aegis that an antimalarial campaign is being carried out in several South American countries, the final objective of which is the eradication from the American continent of vector mosquitos.

Lewis and Lutheran Blood-group Systems

In response to a request addressed to WHO by the British experts on the Rh factor, Dr R. R. Race, Dr A. E. Mourant and Dr W. T. J. Morgan, a grant has been made to

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[1] *Chron. World Hlth Org.* 1949, 3, 35
[2] *Chron. World Hlth Org.* 1949, 3, 20

enable Dr R. Grubb of Lund and Dr P. H. Andresen of Copenhagen to visit the Lister Institute for the discussion of certain problems connected with the nomenclature of two blood-group systems: " Lewis " and " Lutheran ".

It will be recalled that a new human blood-group antigen, which is believed to occur in 25% of the English population, was discovered by Mourant in 1946.[3] This antigen was subsequently called " anti-Lewis ". The anti-Lutheran agglutinin was discovered and described by Callendar, Race & Paykoç in 1945.[4]

The discovery of these two previously unknown agglutinins is not only of theoretical interest, for it has been shown recently in Australia by Jakobowicz, Simmons & Bryce that transfusion with Lewis-incompatible blood may result in untoward incidents.[5]

Mono-specific Inaba and Ogawa Sera and Vaccines

Sir Sahib Singh Sokhey, Director, Haffkine Institute, Bombay, has informed the Secretariat that a preparation of the cholera mono-specific Inaba and Ogawa agglutinating sera, recently produced at the King Institute, Madras, is now ready for distribution and collaborative assay.

Monovalent dried culture vaccines of Inaba and Ogawa types, supplied by Dr M. V. Veldee, Chief, Biologics Control Laboratory, National Institutes of Health, Bethesda, Md, have been forwarded to the State Serum Institute, Copenhagen, for distribution in view of assay. Sir S. Sokhey has provided the freeze-dried living strains to be held as reference preparations by the Kasauli Institute, India, for the comparison of the vaccines with their original strains.

Cholera O Antigen

A reference preparation of cholera O antigen, suitable for immunization of rabbits, to produce antisera capable of distinguishing the true cholera and the El Tor strains from all other cholera-like vibrios has been obtained by the late Dr P. Bruce White of the National Institute for Medical Research, London.

Standardization of Anti-A and Anti-B Sera

Anti-A and anti-B blood-group agglutinating sera have been distributed by the National Institute for Medical Research, London, to members of the Expert Committee on Biological Standardization, interested in this problem. The samples have already been tested by some of the experts, and it is anticipated that an international standard will soon be adopted by WHO.

Costa Rica and Honduras ratify WHO Constitution

Costa Rica and Honduras have ratified the Constitution of WHO, thus bringing the total number of Member States of the Organization to 61.

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[3] Mourant, A. E. (1946) *Nature, Lond.* **158**, 237
[4] Callendar, S., Race, R. R. & Paykoç, Z. V. (1945) *Brit. med. J.* **2**, 83
[5] Jakobowicz, R., Simmons, R. T. & Bryce, L. M. (1947) *Med. J. Aust.* **2**, 570

Recent and Forthcoming Meetings

4-9 April	WHO/UNESCO: Conference to establish the Council for Co-ordination of International Congresses of Medical Sciences, Brussels
12-13 April	Joint Committee on Health Policy, UNICEF/WHO, Geneva
20-30 April	Expert Committee on Unification of Pharmacopoeias, Geneva
26-30 April	Sub-committee (of Expert Committee on Biological Standardization) on Fat-Soluble Vitamins, London
May, tentatively first week	Preparatory Meeting of the Rhine River Commission on Venereal Diseases, Geneva
2-7 May	Expert Committee on Biological Standardization, London
10-14 May	Expert Committee on Insecticides, Cagliari, Sardinia
23-28 May	Expert Committee on Health Statistics, Geneva
June	Joint Committee on Occupational Hygiene, ILO/WHO, Geneva
1-4 June	WHO/UNESCO: Interim Co-ordinating Committee on Medical and Biological Abstracting, Paris
Before 13 June	Joint Committee on Hygiene of Seafarers, ILO/WHO, Geneva
13 June-2 July	Second World Health Assembly, Rome
July, first week	Executive Board, fourth session, Geneva
26 July-2 August	Expert Committee on Tuberculosis, Copenhagen
10-17 August	Expert Committee on Malaria, Geneva
September (probably)	Regional Committee for South-East Asia, New Delhi
September or October	Regional Committee for the Eastern Mediterranean, Alexandria
October (tentative)	Joint Committee on Nutrition, FAO/WHO, Washington
October	Sub-committee (of Expert Committee on Venereal Infections) on Serological Standardization and Laboratory Aspects, New York
Late October	Expert Committee on Venereal Infections, New York
November	Joint OIHP/WHO Study-Group on Cholera, India
Autumn	Expert Committee on Mental Health, Geneva
Autumn	Expert Committee on Plague, Geneva
Autumn	Expert Committee on International Epidemiology and Quarantine; Section on Quarantine; and Yellow-Fever Panel; Geneva.

Views on WHO

Task of South Africa in the light of WHO Constitution

Addressing the Fifth International Congress of Pediatrics, New York, July 1947, [1] Dr Joseph Gillman, Medical School, University of the Witwatersrand, Johannesburg, said :

"...I appreciate very much indeed the sacrifice and personal effort made by... individuals who have actively promoted this kind of international collaboration in matters which affect the welfare of the human race. It is a practical step in the realisation of the objectives of the World Health Organization to which 61 nations gave their pledge on July 22nd 1946. This new health organization, whatever its present limitations carries a message of hope to many people in different parts of the world. At least those countries who have undertaken to support this international organization will remain indicted as long as their people are denied elementary human rights in the form of security and health. This applies particularly to countries inhabited by mixed populations."

The speaker then examined " the tasks facing South Africa in fulfilment of her obligations towards her infants and children in terms of the new Health Charter."

India and WHO

An article has recently appeared in *People's Health*, Madras (1948, **3**, 57) in which an anonymous author, described by the editor as a " high authority ", gives a history of WHO and explains the advantages which India may obtain from its participation in WHO.

"... India's role " it is stated, " is twofold, firstly as a ' donor ' and secondly as a ' recipient '... Indian health services are still... backward... She has, however, an ample amount of local talent in individual fields of medical endeavour. This talent is being placed at the service of WHO through eminent Indian experts. No less than five Expert Committees of the WHO contain Indian members who are taking a very active part in the formulation of WHO policy and programmes. In the control of epidemic and endemic diseases, India has a particularly important part to play on account of the extensive field experience gained in the country... In the field of medical research too, Indian scientists have played no mean part... Even to-day Indian medical institutions are being utilised for the training of health personnel for other countries of Asia..."

" As a ' recipient ' country India has, of course, much to gain from her association with the WHO in the strengthening of her national health services by helping to train a vast army of doctors, nurses and midwives, health visitors and sanitary inspectors... Fellowships for postgraduate studies in foreign countries are available from the WHO and eminent foreign experts in different medical specialities can be brought here if desired for demonstrating to the medical profession in India the modern advances in scientific knowledge. A certain amount of medical equipment and literature is also available. The main feature of WHO assistance however is the sending of demonstration and training teams to different countries... These teams consist of experts who are posted to member countries for short periods in order to demonstrate disease control in selected areas and to train local personnel who will then take over the work and continue it under the national health authorities.

" As the largest partner in the South East Asia region," concludes the author, " India also has to lead the way in the energetic fulfilment of these international rights and obligations and so to strengthen further her ties with the WHO which is perhaps the only international organisation free from political considerations,

[1] *Acta paediatr., Stockh.* 1948, **36**, 83

determined only to raise the standards of health of all peoples without distinction of race, religion, political belief, economic or social conditions."

International Medical Mission to the Philippines

An editorial in the issue for November, 1948, of the *Journal of the Philippine Medical Association* (1948, **24**, 663) comments on the visit of the small medical teaching mission sponsored jointly by WHO and the Unitarian Service Committee of America.[2]

" Heretofore, Filipino physicians, whether they be general practitioners or specialists, have had to go abroad in order to come in contact with foreign specialists... Unfortunately, however, not many of our physicians can avail themselves of the opportunities and advantages of travel. Because of the great distance of the Philippines from the great medical centers of the world, the cost of the trip to these centers, in terms both of money and of time, is prohibitive... For this reason, the coming of the International Medical Mission to the Philippines, upon the invitation of our Government, and under the joint auspices of the Unitarian Service Committee and of the World Health Organization, should be of unusual import to the local medical profession."

Pharmacopoeias

" The seventh British Pharmacopoeia ", said Sir Percival Hartley in an address to the Pharmaceutical Society printed in abbreviated form in the *Pharmaceutical Journal* (1948, **161**, 439), " is more than a work of patient endeavour standing alone, as it were, in splendid isolation; that description does not do full justice to the work as it fails to bring out the place it occupies in the integrated international achievements made in so many directions in the inter-war period, largely under the guidance and stimulation of the Health Organisation of the League of Nations, with which the British Pharmacopoeia Commission developed and maintained close contacts and cordial co-operation. This work is being continued and developed by the World Health Organisation, and the part which national pharmacopoeias are destined to play is very clearly set out in its Constitution, its aims and its functions. These are very specially directed to develop and establish and promote international standards with respect to the safety, purity and potency of biological, pharmaceutical and similar products moving in international commerce ; and the advertising and labelling of those products; there is much concern, too, over dangerous drugs and drugs of addiction. This brings the World Health Organisation with its manifold and benevolent activities, its high purpose and its interests very near and gives an added significance and importance to our new Pharmacopoeia."

Global Concept of Disease

In a paper presented at the Centennial Celebration of the American Association for the Advancement of Science, summarized in a recent number of *Science* (1948, **108**, 593), E. C. Faust dealt with the global concept of disease, and concluded that disease was global in its extent, and control measures must be conceived and carried out on a global scale. This must be under the direction of a single co-ordinating agency, the World Health Organization.

[2] *Chron. World Hlth Org.* 1948, **2**, 263

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